

USER'S MANUAL AND SPECIFICATION

type of the device: SBA-430 base station

433,92 MHz, hopping code KeeLoq

TECHNICAL PARAMETERS**Basic supply:**

- voltage supply: 187V -253 V AC
- power consumption <1,2 A

Reserve supply:

- voltage: 12 V DC
- accumulator: internal 12V/7Ah or external 17-34Ah
- power consumption: 0,5A in the reception mode

Radio channel:

- type of receiver: superheterodyne
- type of modulation: FFSK
- operating frequency: 433,92 MHz
- sensitivity: <-115 dBm
- dimensions: 3U cage of the 19" system

The mechanical construction of the base station is based on the 3U cage of the 19" (RACK) system. It is made of aluminium profiles and is designed to be stored in standard wardrobes (RACK), to be inbuilt into a control desk or as a free-standing device.

The basic version comprises:

- block of the microprocessor controller with a LCD graphic display (illuminated, mono FSTN 320x240) and a touchscreen
- input controller module
- impulse feeder
- computer keyboard
- internal accumulator 12V/7Ah (option)
- WLC 201 amplifier module

On the back panel of the cage you can find:

- supply junction 230V/AX with a cut-out and a fuse
- the internal receiver (WLC 201) junction
- computer keyboard junction (PS2 type)
- RS 232 (DB 9) junction – communication with a computer and an application for alarm monitoring station
- RS 232 (DB 9) junction – serial printer
- junctions: RS 232 / RS 485 which are installed and configured according to needs
- connecting cables for the outer accumulator 12V/17-34Ah

This solution keeps the functionality comparable with the extended monitoring systems but simultaneously it takes into consideration particular requirements for operating on separate objects and areas. Operating on the 433 MHz frequency (a bandwidth which does not require permissions) facilitates the work. It allows for building a system adjusted to present requirements in short time and its further extension when necessary. The transmission based on the hopping code algorithms (KeeLoq by Microchip Technology) guarantees high resistance to interferences and attempts to exchange the signals. Simultaneously it allows for using a wide variety of produced devices.

The examples of use are a good presentation of the abilities of the VIRGO-430 system:

- monitoring the alarm systems which are installed in flats on a separate housing estate with its own local security stand
- market hall with many stands (the employees were equipped with panic remote controls)
- guarded car park with registered enters and leavings on the basis of turning the remote control on which controls the barrier's work
- monitoring objects on the area of allotment gardens
- panic and calling buttons installed in supermarket's cash desks
- monitoring object on the area of a business entity which has institutional security service (several or several dozen objects, the operating area: several kilometres)

Thanks to the advanced abilities of the base station, it is possible to combine the presented uses, keeping the simplified service on the operator's party even when using 1000 senders and remote controls. The operating area can start from several hundred metres but it can also be expanded with use of retransmitters to even several kilometres. The wide variety of devices in our offer allows for the adequate choice of configuration, taking into consideration the technical parameters and economic requirements.

The SBA-430 BASE STATION – the radio signals reaching the station are received by the WLC-201 amplifier and then they are transmitted to the main module of the station. The events codes which are received from the senders and remote controls later are transformed into text information and in such form they are available for the operator on the LCD display. Linking the codes with descriptions is performed according to the conversion table prepared by the station's administrator. Some of the codes can be set as auto-logging (for example, tests) and then they will appear only in the auxiliary window and simultaneously, they will not require being serviced by the operator. All other events are displayed in the main window together with information about reception time, event code and object's number. Such events turn the internal acoustic signalling device on and they remain on the screen until the operator confirms their acceptance. The time of event service is registered in the events buffer. Pressing the space button on the keyboard displays descriptive information connected with the serviced object and event.

The range of information which can be saved in the station and displayed after receiving a signal from a given object comprises: number of object, name, address, 3 x phone number, password, test period, area, service person, status, and description field. The station's memory allows for entering information about 1000 objects. For each object an independent supervision over the time period between the received signals can be run. When the period is exceeded, the code of no connection is generated. In the examination either only test signals or all the signals from a given object may be taken into consideration.

If you connect a printer to the station, you will get a updated register of the received signals with the description of the event code and name of the object. The station has an in-built calendar and a real time clock with an independent battery supply. The internal buffer has the capacity of 4000 events. It can be viewed or printed with appropriate sorting – according to time, event code or object's number. It is also possible to copy the content of the events buffer to an external computer through the RS 232 junction.

Furthermore, the station can operate in connection with an additional computer, which has an application for monitoring station.

1. Description of monitoring station ports

COM1 (female) – connector which activates the process of software updating; for normal operating is a place of connecting the WLC receiver
COM2 (male) – signal output (PC – format SIMS, VIRGO)
COM3 (male) – output for serial printer
COM4 (male) – PC input for updating the "CENT" module software
COM5 (male) – signal input (VIRGO format)
COM6 (male) – signal output (VIRGO format)/ PC input for updating the "QEEL" module software
COM7 (male) – PC input for additional functions (sending the content of the memory buffer)

2. Connecting devices in the normal operating mode

COM1 – WLC 201 receiver
COM2 – NULL MODEM connected through a cable with a computer with the monitoring station software (SIMS, KRONOS etc.). It can be left free for the autonomic operating of the monitoring station
COM3 – connected to a serial printer with a cable according to printer's specification
COM4 – free (NC)
COM5 – NULL MODEM connected through a cable with COM6 of the station (included)
COM6 – NULL MODEM connected through a cable with COM5 of the station (included)
COM7 – free (NC)

3. Serial printer settings

- serial port speed: 9600
- data bits: 8
- stop bits: 1
- evenness (parzystość): none

The SBA-430 station has the ability of exchanging the software (for example, when a producer introduces new functions facilitating operator's work). This process does not require sending the device to the producer – a user can perform the process himself, using a computer. The necessary software may be obtained directly in the GORKE Electronic company or on the website www.alarmsoft.com.pl. The version of the software which is installed on the station can be checked after turning the station on (the information about the version and the compilation date is displayed on the screen).

4. Devices' connection in the mode of updating the "CENT" module software

COM1 – connect a plug which activates the updating function (the plug is included, the switch on the plug is set in the position "CENT")

COM4 – connect it with a NULL MODEM cable to a computer on which you will launch the application updating the software (computer's COM1)

Note: during the updating process, it does not matter what is connected to the ports COM2 and COM3, COM5, COM6, and COM7 – can be unplugged or remain in the configuration for the normal operating

5. Steps of updating the "CENT" module

- 1) turn the monitoring station off (disconnect the power supply – put the "SUPPLY" switch on the back part of the case into the "0" position and then the battery supply
- 2) plug the plug which activates the updating process in (the switch on the plug should be in the position "CENT")
- 3) disconnect the keyboard from the station
- 4) connect the COM4 of the station with the serial port (COM1) of the computer on which you will launch the updating application
- 5) turn the power supply on (no matter of what source)
- 6) launch the application which reloads the station cent07xx.bat
- 7) you will see a messages on the screen: about correct opening the port, about the process progression and at last, about finishing the process. In case of error during the reloading, check whether the plugs were connected correctly (according to the above description) and check whether another program using computer's COM1 is not launched on the computer
- 8) after successful reloading the software, turn the power supply off
- 9) connect the station according to the configuration for the normal operating
- 10) connect the power supply and the battery

If there is a necessity to use the COM2 port of the computer in the process of updating the software, perform the following procedure:

- edit the cent07xx.bat file
- in the second line change the value of the COM parameter from 1 to 2
- save the change
- run the updating process as described above

6. Devices' connection in the mode of updating the "QEEL" module software

COM1 – connect a plug which activates the updating function (the plug is included, the switch on the plug is set in the position "QEEL")

COM6 – connect it with a NULL MODEM cable to a computer on which you will launch the application updating the software (computer's COM1)

Note: during the updating process, it does not matter what is connected to the ports COM2, COM3, COM5, COM7 and COM4 – they can be unplugged or remain in the configuration for the normal operating

7. Steps of updating the "QEEL" module

- 1) turn the monitoring station off (disconnect the power supply – put the "SUPPLY" switch on the back part of the case into the "0" position and then the battery supply
- 2) plug the plug which activates the updating process in (the switch on the plug should be in the position "QEEL")
- 3) connect the COM6 of the station with the serial port (COM1) of the computer on which you will launch the updating application
- 4) turn the power supply on (no matter of what source)
- 5) launch the application which reloads the station QEELxx.bat
- 6) you will see a messages on the screen: about correct opening the port, about the process progression and at last, about finishing the process. In case of error during the reloading, check whether the plugs were connected correctly (according to the above description) and check whether another program using computer's COM1 is not launched on the computer
- 7) after successful reloading the software, turn the power supply off
- 8) connect the station according to the configuration for the normal operating
- 9) connect the power supply and the battery

If there is a necessity to use the COM2 port of the computer in the process of updating the software, perform the following procedure:

- edit the cent07xx.bat file
- in the second line change the value of the COM parameter from 1 to 2
- save the change
- run the updating process as described above

8. The event will be saved to the events history if:

When connected to the PC:

no recording to the buffer

- 1) when there is no connection with PC
 - if the buffer's memory is overloaded (over 31 events)
- the events remain unserved – the date and hour of reception is entered as the servicing time
- 3) when pressing "ENTER" (servicing the event from the operator's buffer)

Last 4096 events are remembered in the events history.

Plug which updates the software exchange process:

- for "QEEL" – pins 2-5 shorted
- for "CENT" – pins 1-5 shorted

9. WLC (COM1) socket outlet :

- 1- activation of the software exchange for the "CENT" module
- 2- activation of the software exchange for the "QEEL" module
- 3- (+12V DC)
- 4- (+12V DC)
- 5- GND
- 6- WLC line
- 7- WLC line
- 8- SAB
- 9- SAB

10. Description of the base station's functions and the keyboard control

"a" – exit (just as Esc)
"t" – set time
"r" – events history, scroll using the cursors ↑↓ - exit "a"
"space" – details of the object – exit "a"
"e" – edit object; set the type of definition on 1
"m" – move to the next page of unserved events
"k" – move to the previous page of the unserved events
"f" – format the MMC – database of clients, autolog entries, code descriptions, event memory will be deleted
"i" – auto log in – edit codes
"l" – events codes – edit descriptions
"g" – edit filters
"n" – learn a remote control
"q" – send the clients based through RS – not used
"y" – view the entered senders and part of the name
"x" – delete sender
"d" – print the events buffer – using the filter
"p" – set the code for the event: no test signal (common for all objects)
"s" – choose transmission protocol between the SBA-430 station and a computer
"Enter" – service the event (remove from the operator's list)

11. The display of the base station consists of two parts:

- 1) larger area – operator's screen – in the normal operating it displays event which are supposed to be serviced
- 2) smaller area – it displays serial numbers of the three last received senders

When moving in the user's menu, obey the following rules:

- to enter a particular settings menu, press one of the letters describe above
- you can exit the menu by reaching the end of settings or by pressing the "a" button
- the "m" and "k" buttons allow for moving to the next/previous page in the menu
- to move between the lines, use the ↑↓ cursors

PROGRAMMING SENDERS TO THE STATION'S MEMORY

The base station can cooperate with senders produced by GORKE Electronic, that is remote controls of the PUK and RNB series, stationary senders PNH, NRP (except NRP 102K). Only after entering the sender to the station's memory, will it be noticed by the device.

Follow the procedure:

1. press the "n" button on the station's keyboard
2. press the control's button or release the sender to activate a transmission. On the smaller screen you will see serial number of the sender – it means that the station received the given sender. Note: a serial number of a control which has already been entered or serial numbers of controls not produced by GORKE Electronic will not appear on the screen.
3. on the display you will see a question whether to save the number. Check whether on the lower screen the last received number is the number of a new sender (the last received serial number is located in the bottom of the screen). If yes, press "t"; if the number is different, press "n" – the station will quit the mode of learning a new remote control.
4. on the display you will see a question about the number of object under which the sender is supposed to be saved in the station's memory (select a number between 0-999. NOTE: if you choose a number under which another remote control was entered, the previous sender will be overwritten)
5. after this operation, release the sender again and activate a transmission. If the operations succeed and the serial number is correctly entered, you will see on the main screen an event from a given sender. If it is not displayed, repeat the learning process.

Each sender which was entered into the memory has its own number (0-999). You can check it by activating a transmission – on the main operator's screen you will see another entry which contains the hour of the signal reception and next – the number under which the sender was entered, and last – an event code (if descriptions are assigned to the event codes, instead of the code, you will see a description).

So you already know the sender's number under which it was entered into the station's memory. Now you can create a short description for each sender. Follow the procedure:

1. press the "e" button – on the screen you will see a question about the sender's number (give the number which you obtained in the way described above – NOT THE SERIAL NUMBER – and confirm it by pressing "enter")
2. fill in the fields:
 - a) type of definition: 1
 - b) name: give the name which is supposed to be displayed on the operator's screen and printed on the serial printer when the signal from a given sender is received
 - c) street
 - d) house number
 - e) city
 - f) code
 - g) optional description
 - h) test period in minutes: It is a period of time in which a test signal is supposed to be received from the sender. If it does not happen, an event will be generated ("no test")
 - i) number of conversion table: 1 – no conversion. If you enter 2, a number "20" will be added to the codes of events coming from this sender.
3. After you fill all the fields, you will see a question: "save changes?" – confirm with the "t" button, cancel with the "n" button.

The station remembers the 4000 last received signals. They can be viewed, printed, sent to computer and saved on disk. The parameter connected with these functions is so-called filter function. It enables selecting from the memory such events which fulfil particular criteria:

- event code
- number of the sender
- date of receiving the signal

You can set the filters with the "g" button.

To launch the menu of browsing the events selected by the filters, press the "r" button.

Press the "d" button to print the history of events selected by the filters.

FUNCTIONS AND OPERATING OF THE SBA-430 STATION

During the normal operating, the events from the senders received by the base station are displayed on the main operator's screen. You can display the information assigned to the sender (name, address, additional description) by pressing the "space" button (but first, you have to select the event with the cursor). You can service the event by selecting it with a cursor and pressing "enter". In this moment, the event is rewritten to the events memory as serviced.

There are two more cases then an event is rewritten to the events memory as serviced:

- if on the operator's screen 32 events are displayed, the next coming signals will be automatically rewritten to the memory. The hour of receiving the event will be written down as the hour of servicing.
- when a given even is set as "auto logging in", that is, an event which does not require operator's service (for example, test signals). The codes of auto-logging events can be edited in the menu called with the "j" button. The auto-logging events are not sent to the serial printer (COM3).

The event code may have the value between 00-FF. If no description is assigned to the event code, then on the operator's screen and on the printer the code number of the event will be seen. Entering the descriptions of the codes facilitates the operator's work, for example, instead of an event code "00", a "test" can be displayed/printed; instead of "03" – "assault" etc. You can change these settings by choosing the menu with the "L" button.

The station enables also the functions of signal tests servicing. In the menu called with the "p" button you can set a code of an event generated after the station states that there is no signal from a given sender for a period longer than it is entered in the sender's description (description menu is called with the "e" button – it is described above).

It is intuitive to use a lot of options, for example, time setting ("t" button), formatting the MMC card ("f" button), browsing the entered senders and parts of name ("y" button), deleting a sender ("x" button), etc.

The SBA-430 base station can cooperate with a computer on which an application of monitoring station is installed. You can choose of the two protocols for the transmissions between the station and the computer:

- SIMS
- VIRGO.

The choice is confirmed with the "s" button.

An additional function of the SBA-430 station is controlling the relay output, which is outlet on the back part of the case (option). The contract outlet on the outside can be shorted or unshorted after a signal comes from a sender with appropriate code. Press "z" button to configure the relay output (type NO or NC) and to edit the events codes. To quit the menu – press "a" button.